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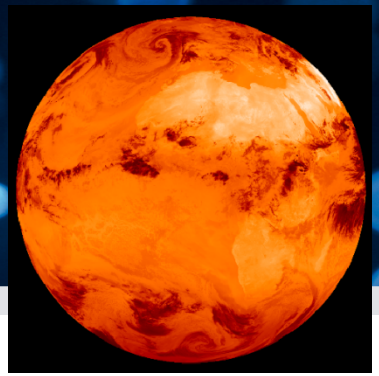
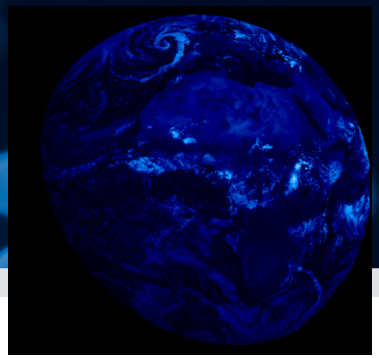
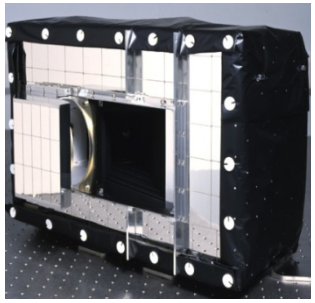
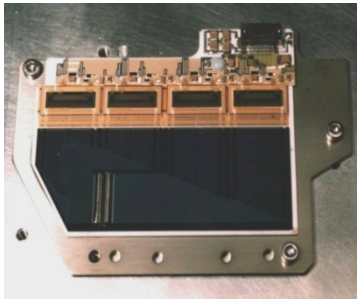


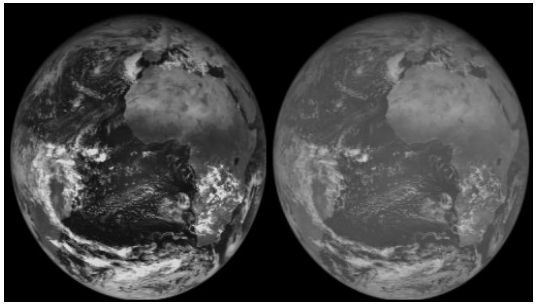


GERB Project status

H. Brindley and J. Russell







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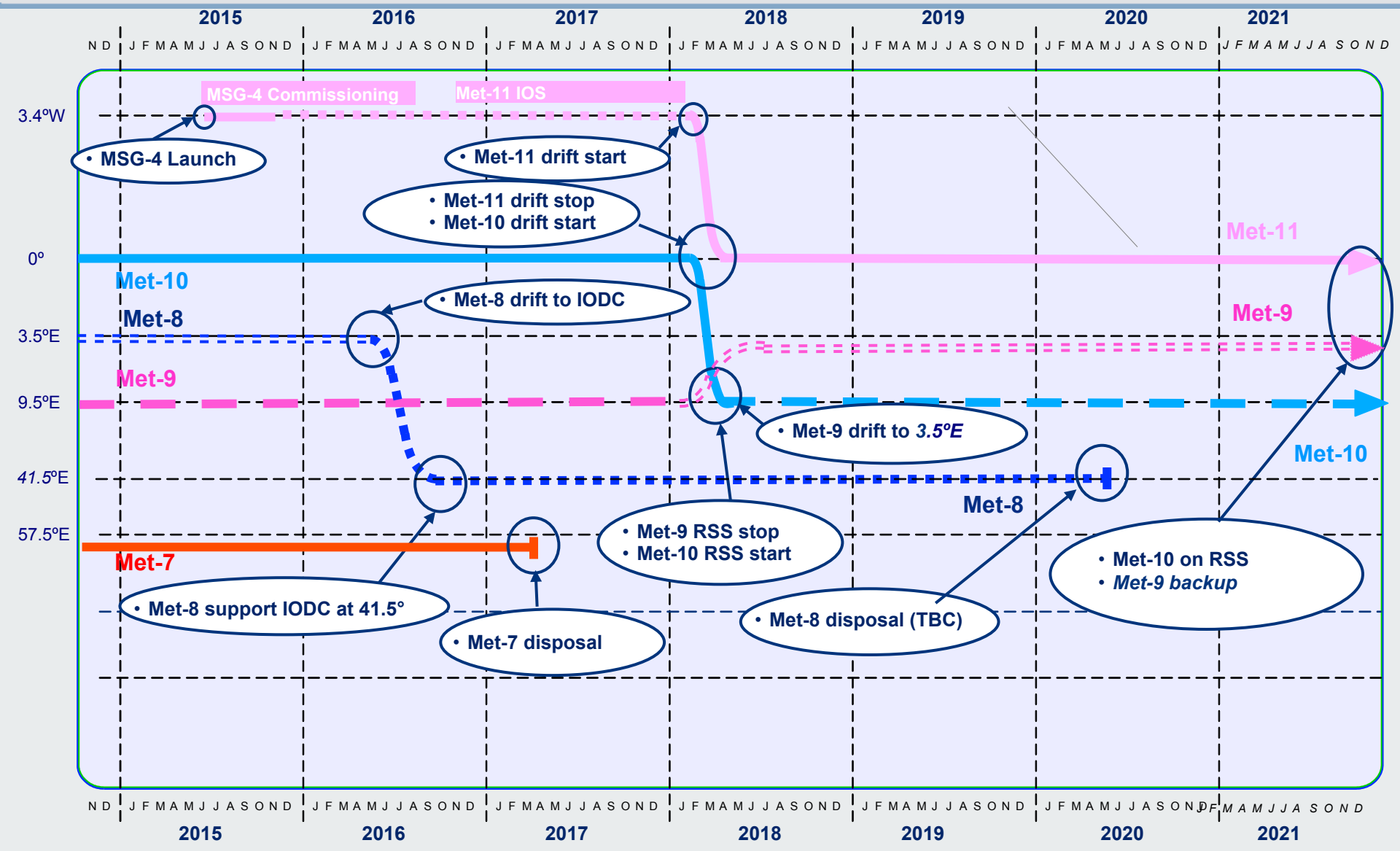
METEOSAT Status



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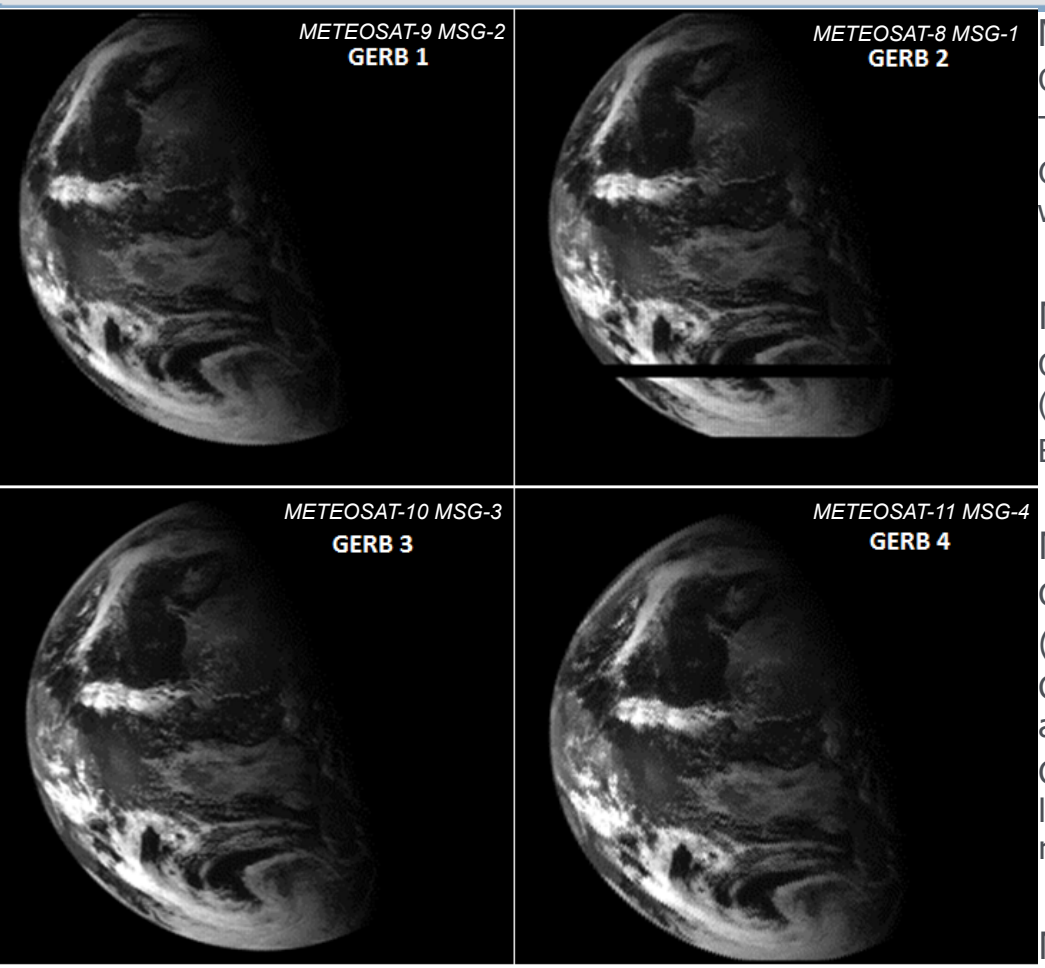
GERB Status



NANRG SW scans from the four GERB instruments at ~16:30 20/11/2015

MSG-3 METEOSAT-10 with GERB 3 (OP 0°)

Currently operating (SEVIRI FES and GERB NORMAL)

Took over 0° operational service Jan 2013.

GERB-3 suffered an interruption to operation April 2013 and wasn't recovered until April 2015.

MSG-4 METEOSAT-11 with GERB 4 (IOS)

Commissioned successfully if with difficulty Aug – Dec 2016 (satellite spin rate restricted to accommodate GERB issue)

Expected to begin operational service Feb 2018

MSG-2 METEOSAT-9 with GERB 1 (OFF)

GERB 1 operational record May 2007 – Jan 2013

(Edition 1 data on CEDA)

GERB 1 observations continued through to Jan 2016 and cover period of GERB 3 outage

GERB 1 lost mirror control Jan 2016 suspected end of life event TBC (~9 years rotations >2 ¼ millions rotations)

MSG-1 METEOSAT-8 with GERB 2 (OP 41.5°)

GERB 2 operational record May 2004 – May 2007 (Edition 1 data on CEDA)

Begins data collection from 41.5° E later this month (~60% of GERB 1 mirror rotations)

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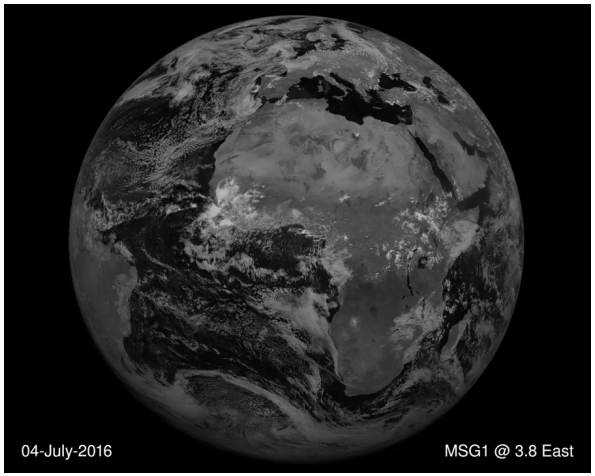
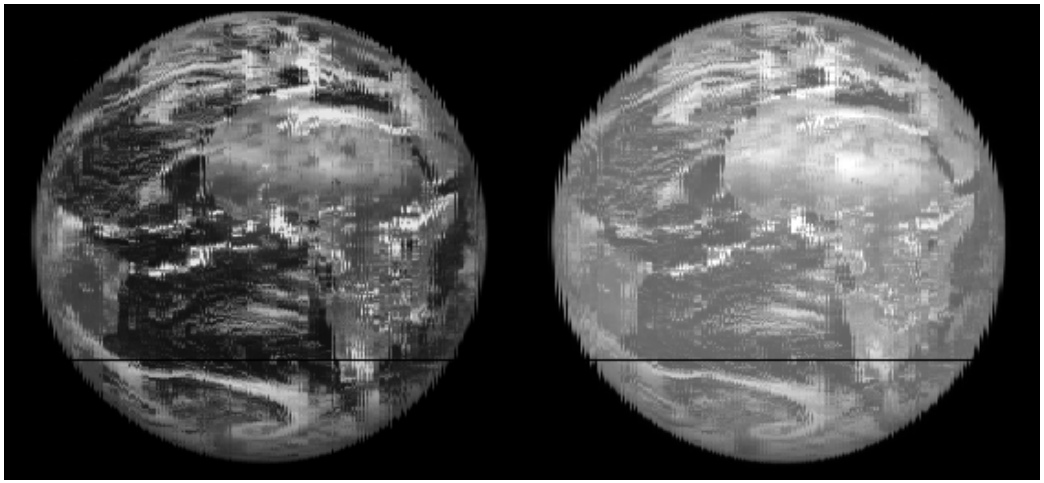
GERB 2 at 41.5°E October 2016 -

- Moved to 41.5°E July – September 2016: SEVIRI Indian Ocean full Earth scan data collection





Long period in SAFE resulted in >5% difference in SW response of the two mirror sides. Further assessment and processing work required to properly calibrate the SW data

April – August data suffers from noisy pointing due to satellite sun sensor being obscured. Development work and major processing changes required to process these data to usable products.

Major processing updates required

Rufus talk and poster

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Current project priorities

- Edition 1 filled data products (HR and BARG)
  - Complete record now ready for transfer to CEDA
  - Pending final validation results for quality summary

Baudrez talk

- Edition 2 development work ongoing
  - SEVIRI thermal radiance definition and updated calibrations applied prior to the GERB use of SEVIRI in processing
  - New thermal ADM to deal with known angular deficiencies
  - Updates to SW ADM selection
    - » ocean according to reanalysis wind speeds
    - » improvements to cloud detection and property determination
    - » snow
    - » dynamic surface type selection in Sahel
  - Improvements to SW flux treatment over ocean in the presence of dust and aerosol
  - Calibration update to stabilise and homogenise GERB 1 and GERB 2 records

Ipe and Russell talks

- Obs4MIPS GERB diurnal monthly average product
  - New data type added for CMIP 6 to enable Obs4MIPS product
  - Product definition and assessment begun, but needs to be scheduled into development tasks

Russell et al., poster

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Future work

- Data record: Jan 2013 – April 2015
  - GERB-1 observations are available for the period when GERB-3 was not operating
  - Need to be processed using SEVIRI on different MSG: major processing change
  - These data are not part of the GERB-1 aging study: study would need to be extended
- Data record: April 2015 – present (GERB-3)
  - GERB-3 failure meant the planned 1.5 yrs validation effort was first postponed and then re-scoped to look at the calibration stability and inter-calibration of GERB-1 and GERB-2. Only a preliminary validation of GERB-3 was undertaken
  - 2 years with a stuck mirror has affected the relative calibration of the two mirror sides which requires further assessment of calibration parameters
  - Calibration updates are expected but processing updates required to enable separate processing of two sides of mirror are not currently time-tabled
- GERB-2 Indian ocean data collection
  - Very large calibration difference between two sides of GERB-2 mirror: similar issues to above
  - GERB-2 pointing is nominal Oct – Feb but use of Earth sensor causes noisy pointing April – Aug which will require a major effort to determine how to process the data

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Current challenges

- GERB project employs 6 people (FTE) across three institutes (RAL, RMIB and Imperial)

  Most of this effort is spent on day-to-day activities:
  - Instrument commissioning, operations, health and commanding
  - 24/7 receive and archive L-band data as GERB and SEVIRI headers, for level 0 products and NRT processing to GERB level 1.5 filtered radiances
  - NRT processing to level 2, requiring full SEVIRI data

  Additional tasks:
  - Additional cal/val effort available after each instrument commissioning for 18 months
  - No functionality to run multiple processing versions
  - Minimal development effort to deal with additional (unforeseen) factors
  - Increasingly large and unstable systems

Collaborative work with CERES/ScaraB MT teams actively encouraged

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Tasks completed

- GERB 3 successfully restarted
  - Failure analysis and operational procedure modified
  - Assessment of stoppage effects begun
  - Modifications to GERB 4 as a result
- GERB 4 launch commissioning
  - Major anomaly investigation due to initial in orbit issues with GERB 4
- Filled HR and BARG products produced for the GERB 1 and GERB 2 operation records
  - Glint and SZA 80-85 filled by scene extrapolation
  - SZA 85-105 filled with twilight model
  - Clear ocean for glint angles < 25° uses GERB monthly climatological value